SPECTRUM XXI - FUNCTIONAL REQUIREMENTS

Prepared by the

Joint Spectrum Center

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Summary of Changes

The requirements listed below were changed from the draft SPECTRUM XXI Requirements Document released in Jan 1999. The changes were due to feedback from the user community, clarification of requirements, and correction of typographical errors. A brief comment on why each change was made is included.

1.2.8 – Reworded to clarify requirement
1.3.6 – Removed per USEUCOM Direction
1.4.3 – Removed per USEUCOM Direction
1.4.8 – Not a JSMSw capability – Moved to Post IOC
1.7.1 – Reworded to clarify requirement - Removed "copy" capability
3.1.3 – Not a JSMSw capability – Moved to Post IOC
3.1.10 – International Standards not defined - Moved to Post IOC
6.2.3 – Reworded to clarify requirement - Removed "modify, copy,"
6.2.10 – Not a $JSMS_w$ capability – Moved to Post IOC
6.4.5 – Reworded to clarify requirement - Replaced "allotment plan" with Scheduler
11.2.4 – Not a JSMSw capability – Moved to Post IOC
12.4.5 – Typo – Requirement correctly placed in Post IOC.
15.2.9 – Not a JSMSw capability – Moved to Post IOC
15.2.10 – Not a JSMSw capability – Moved to Post IOC
15.2.11 – Not a JSMSw capability – Moved to Post IOC
18.2.5 – Not a JSMSw capability – Moved to Post IOC
18.4.7 – Not a JSMSw capability – Moved to Post IOC

SPECTRUM XXI - FUNCTIONAL REQUIREMENTS

BACKGROUND

In accordance with Program Budget Decision 082, the Joint Spectrum Center (JSC) was tasked to develop a standard, Department of Defense (DoD)-wide, spectrum management information system. Concurrently, the Joint Staff appointed the Commander of the JSC to be chairman of the Joint Spectrum Management Working Group (JSM WG). The JSM WG provides a forum within the DoD spectrum management community for soliciting input for automation requirements and for determining the migration strategy for spectrum management automation.

Specifically, the JSM WG was tasked to "... address inclusion of spectrum management applications into the Global Command and Control System (GCCS)[1]" by

- Articulating joint spectrum management requirements
- Nominating existing applications that meet those requirements
- Identifying the need for further software development to satisfy those spectrum management requirements.

At the first JSM WG meeting held 11-12 June 1996, Commanders-in-Chief (CINCs) and Service users of spectrum management automation systems were asked to complete a requirements prioritization survey. The survey included over 500 spectrum management automation requirements identified from existing spectrum management systems, functional area policy and procedure documents, and the improvement opportunities identified during the Management and Use of the Electromagnetic Spectrum (MUES) Business Process Re-Engineering study. Survey participants were also requested to identify any additional automation requirements necessary to support their mission and activities. All requirements identified through this survey were presented to the JSM WG for review. Both the current set of functional requirements that comprise SPECTRUM XXI and newly proposed requirements are shown in Appendix A.

Through the compilation and analysis of survey results and a comparison of these results, with the defined procedures for management of spectrum in a joint environment,[2] only a subset of spectrum management requirements (addressing the Joint Restricted Frequency List (JRFL), the Electronic Warfare (EW)

[1] Global Command and Control Joint Spectrum Center Ad Hoc Working Group Establishment, Memorandum from the Vice Director for Command, Control, Communications, and Computer Systems, 15 April 1996.

[2] Joint Operations in the Electromagnetic Battlespace, CJCSM-3220.01, Joint Staff, Washington, DC 20318-0300, October 1997.

deconfliction and the interference reporting functionality) are required by multiple CINC/Joint Task Force (JTF) staff sections (J2, J3, and J6). This subset, presented in Appendix B, was forwarded to the GCCS Review Board, along with a recommendation from the JSM WG that these requirements be approved for implementation as SPECTRUM XXI Web applications accessible from the GCCS Web browser.

In November 1996, LTG Buchholz, Joint Staff J-6, directed that the JSC develop a Windows NT based application that addressed the spectrum management requirements of the CINCs, the JTF commanders, the Services, and the sustaining base elements. Further, it was directed that the application be completed by the end of Fiscal Year 1998,

To meet this milestone, a subset of the total requirements defining an Initial Operating Capability (IOC) was formulated based on the JSM WG survey results. The SPECTRUM XXI IOC will replace the Frequency Resource Record System (FRRS) Distributed Computing Facilities (DCFs) and the Joint Spectrum Management System for Windows ($JSMS_w$) with integrated applications and will contain distributed data processing capabilities such as automatic data forwarding. Due to technical difficulties, delays and financial constraints, the JSC redefined the identified requirements and designated them as an IOC. This redefined IOC is to be available by September 1999. Subsequent software releases, to be defined and coordinated via the JSM WG, will address the remaining CINC and Service functionality identified through the survey but not implemented as part of the IOC, as well as selected improvement opportunities identified as part of the MUES initiative.

A final draft of the functional requirements for SPECTRUM XXI was provided to the JSM WG members in February 1997. A second JSM WG meeting was held 23 and 24 April 1997, whereby CINC and Service comments about the functional requirements' issues were reviewed and resolved. The resulting May 1997 baseline document reflected the changes (agreed to at the April meeting), including any new or additional requirements identified. Since the first baseline document, additional requirements have been proposed. The newly proposed requirements were presented and reviewed for validation as SPECTRUM XXI functional requirements, at the JSM WG meeting, held in July 1998. Subsequent to that meeting, and in response to comments made at that meeting, the requirements baseline document has been rewritten to clarify, and to better define the requirement specification for SPECTRUM XXI.

DOCUMENT PURPOSE

This document provides the baseline functional requirements for SPECTRUM XXI. This requirements document is a "living" document that is continually reviewed by the members of the JSM WG. Therefore, CINC/Military Department (MILDEP) and Joint Agencies should continue to forward any new SPECTRUM XXI functional requirements identified.

This document has been reorganized to reflect the SPECTRUM XXI requirements planned for IOC and Post IOC. Requirements with an "X" in the IOC column will be included in the September 1999 release. Requirements with an "X" in the POST IOC column are planned for the first release subsequent to the IOC. Requirements with a number (the number indicates the requirement's relative importance) in the POST IOC column have been validated by the JSM WG and will be included in future versions of SPECTRUM XXI. This rating of the requirements, which is subject to regular review by the JSM WG, is as follows:

1 – Mission-Essential
2 – Essential for timely operations
3 – Important
4 – Useful but not necessary
5 – Non-Essential

CINC and MILDEP spectrum managers should review newly proposed requirements in order to:

1. Verify that the requirements are valid for their organization and mission.

2. Establish the relative importance of the requirements for their organization and mission.

These proposed requirements will be further investigated by the JSM WG members and will be reviewed at the next JSM WG meeting.

SYSTEM OVERVIEW

SPECTRUM XXI will be a Windows NT based application that will make maximum use of the Microsoft Windows presentation techniques. It will provide database services and spectrum management functionality to the user. SPECTRUM XXI will be interconnected with other SPECTRUM XXI systems and other systems as defined in this document to allow for the maximum amount of automatic data transfer. SPECTRUM XXI also electronically interfaces with the FRRS Central Computing Facility (CCF), enabling users to submit proposals and receive frequency assignment updates.

DOCUMENT STRUCTURE

Appendix A presents both the complete set of functional requirements that comprise SPECTRUM XXI and the proposed new requirements. New requirements are labeled under a separate header and these new requirements are shaded in gray. Appendix B presents the subset of joint spectrum management requirements for capabilities integrated into the GCCS functionality. These capabilities will be accessible via a Web browser that is part of the GCCS. Appendix C contains a list of acronyms used in this document.

APPENDIX A
JOINT SPECTRUM MANAGEMENT
SPECTRUM XXI - FUNCTIONAL REQUIREMENTS

Table A-1 contains a description of 24 Joint and DoD spectrum management system functions. Each function description includes a list of functional components and the attributes of those components. This is a logical presentation of the required functions not an implementation strategy.

Major Functional Requirements Areas **Page**

TABLE A-1
DESCRIPTION OF SPECTRUM XX1 REQUIREMENTS FUNCTIONS

1. MAINTAIN BACKGROUND FREQUENCY PROPOSAL/ASSIGNMENT DATA

1.1 Import Frequency Proposal/Assignment Data

ID	Requirement	IOC	POST IOC	Remarks
1.1.1	Import to the database frequency proposal/assignment data in Standard Frequency Action Format (SFAF) American Standard Code for Information Interchange (ASCII) format.	X		
1.1.2	Import to the database frequency proposal/assignment data in the Government Master File (GMF) Card (ASCII) format.	X		
1.1.3	Import to the database frequency proposal/assignment data in the North Atlantic Treaty Organization (NATO) 14-point (ASCII) format.		4	
1.1.4	Import to the database frequency proposal/assignment data in German 14-point (ASCII) format.		4	
1.1.5	Import to the database frequency proposal/assignment data in NATO Automated Data Exchange Format (ADEF) (ASCII) format.		1	
1.1.6	Require user to specify, on import, the record source (i.e., FRRS, GMF, International Telecommunications Union (ITU), Federal Communications Commission (FCC), Mexico, Canada, and Allied Radio Frequency Agency / Master Radio Frequency List (ARFA) / (MRFL) of frequency proposal/assignment data.	X		
1.1.7	Provide an automated import of frequency assignment data from Compact Disc-Read Only Memory (CD-ROM) files that were created in SPECTRUM XXI format.		1	
1.1.8	Require user to specify, upon import, a record type of frequency proposal/assignment data (i.e., permanent assignment, permanent proposal, temporary assignment, and temporary proposal).	X		
1.1.9	Provide a capability for the user to create a user-defined data source and have this new data source be selectable on the import menu.		1	
1.1.10	Import SPECTRUM XXI proposals/assignments and their status in SPECTRUM XXI database format.	X		
1.1.11	Mark each imported frequency proposal/assignment with the user-selected record source and record type.	X		

ID	Requirement	IOC	POST IOC	Remarks
1.1.12	Require user to specify import type (Initial load, Update database, Purge & Replace of record type and source) of frequency proposal/assignment data.	X		
1.1.13	Provide error checking of imported frequency proposal /assignment data to prevent record duplications.	X		
1.1.14	Provide error checking of imported frequency proposal /assignment data SPECTRUM XXI format to prevent record duplications.	X		
1.1.15	Provide a user-selectable option to reject imported frequency proposals that are duplicates, based on the agency serial number of existing proposals in the database, or replace the existing proposal with the imported record.	X		
1.1.16	Provide an “Import Record Summary” that identifies the total number of records processed, database transactions, and additional records removed. Categorize the completed actions by type of action (SFAF Item 010).	X		
1.1.17	Provide a listing, by Agency Serial Number (SFAF Item 102), of frequency proposal/assignment records that can not be imported.	X		
1.1.18	Maintain an “import summary log” for SFAF-imported records.		3	
1.1.19	Support Web-based submission of frequency requests.		3	
1.1.20	Provide a capability to save the import file summary to an ASCII file.	X		
1.1.21	Provide a user-selectable option, to load, upon import, either a complete proposal or an abridged proposal consisting of only the modified items.	X		
1.1.22	Save records that are rejected during the import process to a file and provide a user capability to modify those records. Then provide a capability to save the corrected records to a file for later import.	X		
1.2 Retrieve Frequency Proposal/Assignment Data				
1.2.1	Retrieve permanent and temporary frequency proposals/ assignments and deleted history.	X		
1.2.2	Retrieve records based on user-defined, stored, and retrieved criteria (Saved Query).	X		

ID	Requirement	IOC	POST IOC	Remarks
1.2.3	Retrieve records based on a frequency proposal/assignment record source (e.g., FRRS, GMF, ITU, FCC, RA, CAN, MEX, ARFA/MRFL).	X		
1.2.4	Sort retrieved records based on specified query fields selected by the user.	X		
1.2.5	Select/deselect retrieved frequency proposal/assignment records for further processing (e.g., Edit, Export, Print, and Electronic Coordination).	X		
1.2.6	Retrieve records based on a user-defined geographic point and radius. Include an option to select mobile records whose operational radius extends into the user-defined area.	X		
1.2.7	Specify an excluded radius of operation as part of the query capability.		4	
1.2.8	Retrieve records based on specified SFAF items, record status, disposition.	X		Removed “or associated comments”
1.2.9	Provide a user option to retrieve records based on the 5-year review that includes a user-defined processing lead-time.	X		
1.2.10	Provide Mass Change for user-selected frequency proposal /assignment records with provisions for permanent and temporary proposal processing rules.			
1.2.11	Provide Mass Compliance of user-selected frequency proposals.	X		
1.2.12	Provide Mass Change for frequency proposal disposition.	X		
1.3 Display Frequency Proposal/Assignment Data				
1.3.1	Display a user-defined, single-line summary list of retrieved records.	X		
1.3.2	Display vertically the full SFAF record data on retrieved frequency proposal and assignment records.	X		
1.3.3	Display assignment locations over a map background graphic and include graphic manipulation tools.	X		

ID	Requirement	IOC	POST IOC	Remarks
1.3.4	Display a spectrum occupancy graph and include graphic manipulation tools.	X		
1.3.5	Display assignments and proposals in GMF (pseudo tag) format.	X		
1.3.6	Display assignments and proposals in NATO 14-point format.			Removed per USEUCOM Direction
1.3.7	Display assignments and proposals in German 14-point format	X		
1.3.8	Display assignments and proposals in NATO ADEF.		1	
1.3.9	Display status, with comments, for each selected proposal/assignment.	X		
1.3.10	Display a summary of Mass Changes to SFAF items with actions completed and actions not completed.	X		
1.3.11	Display a summary of Mass Changes to record dispositions with actions completed and actions not completed.	X		
1.3.12	Display a standard single-line summary list of retrieved records (SFAF items 102, 005, 110, 300, 301, record type and source).	X		
1.3.13	Display vertically a user-defined subset of SFAF items.	X		
1.3.14	Display a user-defined language translation for SFAF items.	X		
1.3.15	Display a preformatted site license, in SFAF for retrieved records using user-selected agency listings to define the output.	X		
1.3.16	Display a preformatted site license, in GMF format for retrieved records.	X		
1.4 Export Frequency Proposal/Assignment Data				
1.4.1	Export selected records in SFAF.	X		
1.4.2	Export selected records in GMF Card format.	X		
1.4.3	Export selected records in NATO 14-point format.	X		Removed per USEUCOM Direction
1.4.4	Export selected records in German 14-point format.	X		
1.4.5	Export selected records in NATO ADEF.		1	
1.4.6	Export selected records in SPECTRUM XXI format.	X		

ID	Requirement	IOC	POST IOC	Remarks
1.4.7	Export of proposals in SFAF must not include blank lines.		2	
1.4.8	Export, in ASCII format, a vertical list of frequencies extracted from selected frequency proposals/assignments.		X	Not a JSMSw capability
1.4.9	Export, in ASCII format, a vertical list of user-defined SFAF items extracted from selected frequency proposals/assignments.	X		
1.4.10	Export a user-defined single-line summary of SFAF items from selected frequency proposals/assignments.	X		
1.4.11	Export selected records in a user-defined language translation.	X		
1.4.12	Export a summary report of records that were processed or not processed for each type of modification action. List these records by agency serial number for each category.	X		
1.4.13	Export a standard single-line summary list of retrieved records (SFAF items 102, 005, 110, 300, 301, record type and source).	X		
1.4.14	Export selected records in GMF (pseudo tag) format.	X		
1.4.15	Export selected records in Site license format, using DoD record information.	X		
1.4.16	Export selected records in Site license format, using GMF record information.	X		
1.4.17	Export selected records in an RBECS frequency resource formatted file.	X		
1.5 Print Frequency Proposal/Assignment Data				
1.5.1	Print retrieved records in a 1-column vertical SFAF.	X		
1.5.2	Print retrieved records in a standard 3-column SFAF.	X		
1.5.3	Print retrieved records in GMF (pseudo tag) format.	X		
1.5.4	Print retrieved records in German 14-point format.	X		
1.5.5	Print retrieved records in NATO ADEF format.		1	
1.5.6	Print a single-line summary of SFAF items, selected by the user, from selected frequency proposals/assignments.	X		
1.5.7	Print retrieved records, using a user-defined language translation.	X		

ID	Requirement	IOC	POST IOC	Remarks
1.5.8	Print assignment locations on a map background.	X		
1.5.9	Print the spectrum occupancy graph.	X		
1.5.10	Save any print type file to a disk file.	X		
1.5.11	Print retrieved records in NATO 14-point format.			Removed per USEUCOM Direction
1.5.12	Print frequency proposal/assignment record status.	X		
1.5.13	Print a vertical list of SFAF items, selected by the user, from selected frequency proposals/assignments.	X		
1.5.14	Allow the user to save the items used to build a summary print, as a template, for future prints. Create, modify, and delete capabilities.	X		
1.5.15	Print, upon user request, an “Import Record Summary” after completing each Import.	X		
1.5.16	Print the “Import Summary Log” (History).		3	
1.5.17	Print a standard single-line summary list of retrieved records (SFAF Items 102, 005, 110, 300, 301, record type and source).	X		
1.5.18	Print selected records in Site license format, using DoD record information.	X		
1.5.19	Print selected records in Site license format, using GMF record information.	X		
1.6 Data Exchange Frequency Proposal/Assignment Data				
1.6.1	Exchange frequency proposal/assignment data between the client, regional, and central server via the Secret Internet Protocol Network (SIPRNET).	X		
1.6.2	Exchange frequency proposal/assignment data between the client, regional, and central server via STU-III.	X		
1.6.3	Exchange proposal status states National Telecommunications Information Administration (NTIA) and the FRRS.	X		
1.6.4	Exchange proposal status comments (NTIA and FRRS).		3	
1.6.5	Exchange frequency proposals between SPECTRUM XXI users to coordinate frequency resources and to make permanent and temporary frequency assignments.	X		Data Exchange involving a Server

ID	Requirement	IOC	POST IOC	Remarks
1.6.6	Automatically update the Central Server and Regional Server databases via an exchange of distributed frequency assignment transactions.	X		
1.6.7	Maintain current frequency assignment data, based on received frequency assignment transactions.	X		
1.6.8	Provide a capability to send proposals /assignments via email as an attachment (without status tracking).		X	Integrated Email/Query Results
1.6.9	Replicate frequency proposal/assignment transactions on all of the regional servers and on the central server.	X		
1.7 Reports and Templates for Frequency Proposal/Assignment Data				
1.7.1	Create, modify, or delete a user-defined language translation template for viewing, printing, and exporting frequency proposal/assignment data.	X		Removed “copy” capability
1.7.2	Create, modify, copy, or delete a user-defined set of SFAF items for viewing, printing, and exporting frequency proposal/assignment data.	X		
1.7.3	Create, modify, copy, or delete a user-defined set of templates for the creation of frequency proposals.	X		
1.7.4	Create, modify, copy, or delete a user-defined set of SFAF items to be displayed, printed, or exported as a single-line summary print of frequency proposals/assignments.	X		
1.7.5	Maintain standard agency/country, frequency request coordination templates and generate coordination requests for user-selected proposals		5	
1.7.6	Generate coordination requests for user-selected proposals from agency/country, frequency request coordination templates.		5	
2. MANAGE FREQUENCY PROPOSAL/ASSIGNMENT TRANSACTIONS				
2.1 Proposal Editing				
2.1.1	Create, modify, copy or delete a frequency proposal(s).	X		
2.1.2	Retrieve a template of required data items based on the type of frequency proposal.		X	Not a current DCF capability
2.1.3	Display/edit multiple proposals simultaneously.	X		

ID	Requirement	IOC	POST IOC	Remarks
2.1.4	Edit proposals in SFAF.	X		
2.1.5	Edit proposals in GMF (pseudo tag) format.	X		
2.1.6	Edit proposals in NATO 14-point format.		X	Not a current DCF capability
2.1.7	Edit proposals in German 14-point format.		X	Not a current DCF capability
2.1.8	Edit proposals in NATO ADEF.		1	
2.1.9	Provide vertical split-screen operations (for two proposals or for an assignment and a proposal) with transfer capabilities between screens (cut and paste).	X		
2.1.10	Access and display spectrum certification data on specific equipment.	X		
2.1.11	Map technical equipment data from the spectrum certification into the proposal.	X		
2.1.12	Provide help text for each SFAF item.	X		
2.1.13	Access the frequency nomination process from within the proposal editor.	X		
2.1.14	Load ASCII list of frequencies into the proposal editor, generating multiple proposals if necessary.		X	Not a current DCF capability
2.1.15	Access the proposal compliance process from within the proposal editor.	X		
2.1.16	Load proposals into the database from the proposal editor. Require the user to define the record type and source before loading data. Provide and display a summary of records imported and not imported, with print and save-to-file capabilities.	X		
2.1.17	Provide global change capabilities for user-selected records with provisions for permanent and temporary records.	X		
2.1.18	Display a proposal vertically beside the frequency assignment record that the proposal is modifying.	X		
2.1.19	Display an approved assignment (with changed items) vertically beside its associated proposal.	X		
2.1.20	Allow for automatic generation of agency serial numbers.	X		

ID	Requirement	IOC	POST IOC	Remarks
2.1.21	Expand an SFAF proposal to a full data set using existing assignment data from within the assignment database.	X		
2.1.22	Access and display host nation data related to Spectrum Certification for equipment identified in a proposal.		1	
2.1.23	Required (user-entered) releasability data for DoD proposals and assignments outside the United States and Possessions (US&P)		1	
2.1.24	Display a proposal and its associated DoD and GMF frequency assignments in a vertically synchronized simultaneous manner.		2	
ID	**New Proposed Requirement(s)**	**Remarks**		
2.1.25	Required (user-entered) releasability data for DoD proposals and assignments within the US&P.	Need J208B review		
2.1.26	Provide a capability to notify the user of frequency assignments that are approaching expiration and review dates.		3	
2.1.27	Load proposals/assignments from an ASCII SFAF file into the editor.	X		
2.1.28	Load proposals/assignments from an ASCII GMF (pseudo tag) file into the editor.	X		
2.1.29	Provide help text for each GMF (pseudo tag) item.	X		
2.1.30	Provide help text for each NATO 14-point item.		X	Not a current DCF capability
2.1.31	Provide help text for each German 14-point item.		X	Not a current DCF capability
2.1.32	Provide help text for each NATO ADEF item.		1	
2.1.33	Create multiple proposals from selected records for modifications or renewals.	X		
2.2 Specify Coordination Requirements				
2.2.1	Add, modify, or delete the list of Electronic Coordination (EC) addressees for each proposal.	X		
2.2.2	Automatically determine coordination requirements based on location and frequency.		5	

ID	Requirement	IOC	POST IOC	Remarks
2.2.3	Maintain local, free-text comments on the proposal.	X		
	2.3 Track Proposal Status			
2.3.1	Maintain a status log for each frequency proposal record. The status log will contain current and past proposal dispositions, EC actions, and administrative tracking actions along with a date/time stamp.	X		
2.3.2	Provide proposal status updates to all SPECTRUM XXI users who either originated the proposal, have been in the direct coordination chain, or have the specific proposal's area of interest defined in their user profile.	X		
2.3.3	Restrict proposal edit authority to a single SPECTRUM XXI user at any one time and forward edit authority with the proposal to the next SPECTRUM XXI user as designated by the previous SPECTRUM XXI user.	X		
2.3.4	Provide automatic entry of administrative tracking statuses, (i.e., Received By, In Progress).	X		
2.3.5	Provide user-selected proposal disposition statuses (Approved, Assigned, Rejected, Deleted, Coordination Initiated, and Coordination Complete) to be entered into the proposal status log with a date/time stamp and edit authority.	X		
2.3.6	Provide user-selected EC action statuses (Forward, Submit, Registered, and Notify) to be entered into the proposal status log with date/time stamp, current client edit authority, and future edit authority.	X		
2.3.7	Display a proposal's current status, status history, status date/time stamps, status originator, and record destination if the status is an EC action.	X		
2.3.8	Print a proposal's current status, status history, status date/time stamps, status originator and record destination if the status is an EC action.	X		
2.3.9	Include the COORDINATION (agency/country) status state for external coordination correspondence.	X		
2.3.10	Integrate Frequency Assignment Subcommittee (FAS) agenda record updates and status information into proposal's status tracking log.		3	
2.3.11	Maintain proposal's compliance status as part of the status tracking information.		5	

ID	Requirement	IOC	POST IOC	Remarks
2.3.12	Regional Server will Date/Time stamp frequency proposal transactions upon receipt.	X		
	2.4 Management Reports			
2.4.1	Generate a report that provides the total number of proposals sent to FRRS for final processing. The report is defined by a user-entered time frame and one or more Frequency Action Officer (FAO) codes (SFAF Item 701).	X		The default for FAO is “ALL”
2.4.2	Access and print a Data Exchange Summary Log for the client terminal. This output reflects a user-entered time frame, date of update, total # of records updated or not updated, and a breakdown of records processed by type of action.	X		
2.4.3	Generate a report that provides the total number of active proposals, their current status and the length of time in that status. The report will consists of a listing of statuses, FOA, time in status, and agency serial number. A user-selectable option for the report is a summary of records broken down by status and length of time in that status.	X		
2.4.4	Generate a report, by agency, which provides the total number of assignments that are overdue for a five-year review, as well as a breakdown of assignments by the user-selected 200 series items.	X		
2.4.5	Generate a report, by agency, which provides the total number of assignments due for a five-year review as well as a breakdown of assignments by the user-selected 200 series items.	X		
2.4.6	Generate a report, by agency, which provides the total number of assignments due to expire, as well as a breakdown of assignments by the user-selected 200 series items.	X		
2.4.7	Generate a report that provides the total number of permanent frequency assignments contained in the database, broken-down by record source as well as by the user-selected 200 series items.	X		
2.4.8	Generate a report that provides the total number of Deleted History records and a listing of agency serial numbers.	X		
2.4.9	Generate a report that provides the amount of time taken for a proposal to go from inception to one of the following statuses; Submitted to, Registered with, Incomplete, Rejected, Tabled, Accepted, or Notified. The user can enter a specific FAO code or the default will show all codes. The report will be broken down by FAO (SFAF Item 701) and by time periods of less than 30, 60, 90, 120, and over 120 days.	X		

ID	Requirement	IOC	POST IOC	Remarks
2.4.10	Generate an assignment status tracking report indicating how long it takes a proposal to be processed from the time it is "Submitted to" or "Registered with" until it comes back as an assignment. The user can enter a specific FAO code or the default will show all codes. The report will be broken down by FAO (SFAF Item 701) and time periods of less than 30, 60, 90, 120, and over 120 days.	X		
2.4.11	Access the Data Exchange Summary Log on the Organizational Server.		X	Not a current DCF capability
3. NOMINATE FREQUENCIES				
3.1. Establish Frequency Nomination Constraints				
3.1.1	Specify required spectrum use (location, quantity, authorization, expiration dates, tuning increment, separation, band, classification, and power.)	X		
3.1.2	Specify the record type (Permanent Assignment, Permanent Proposal, Temporary Assignment, Temporary Proposal) of frequency record to include in the analysis.	X		
3.1.3	Access and select equipment from the spectrum certification database and import the required data parameters.		X	Not a JSMSw capability
3.1.4	Base analysis on terrain-dependent propagation if terrain data are available.	X		
3.1.5	Base analysis on smooth-earth propagation if terrain data are not available.	X		
3.1.6	Specify analysis components options (propagation, Frequency - Dependent Rejection (FDR), antenna models, etc.).	X		
3.1.7	Access and specify general allocation criteria.		1	
3.1.8	Save, restore, or update nomination constraint values.		1	
3.1.9	Identify available frequencies based on acceptable US&P analysis methods.	X		
3.1.10	Identify available frequencies based on internationally acceptable analysis methods.		X	International Standards not defined.

ID	Requirement	IOC	POST IOC	Remarks
3.1.11	Consider frequency assignment operational dates in the analysis.		3	
3.1.12	Process frequency nomination requests for the entire frequency range covered by spectrum management.	X		
3.1.13	Display the processing status during the frequency nomination process.	X		
3.1.14	Nominate frequencies from a user-specified allotment plan.	X		
3.1.15	Label nomination results with the analysis mode used.	X		
3.1.16	Allow user to specify analysis mode (TIREM/SEM or Spectral Overlap).		1	
3.1.17	Allow band assignments to be entered.		1	
3.1.18	Consider ECM authorizations during nomination (Part of the EA Clearance Request requirement - Section 23).		3	
3.1.19	Specify individual frequency proposals/assignments to exclude in the analysis.		X	Not a $JSMS_w$ capability
3.1.20	Nominate against user-selected allocation tables (ITU regional areas, NTIA, FCC) or no allocation table (analysis considers the background electronic environment only).	X		
3.2 Process Nominated Frequencies				
3.2.1	Accept or reject any or all of the nominated frequencies.	X		
3.2.2	Display or print frequency nomination results.	X		
3.2.3	Export nominated frequencies in RBECS file format.	X		
3.2.4	Export nominated frequencies in ASCII file format.	X		
3.2.5	Create a frequency proposal(s) based on nominated frequencies.	X		
3.2.6	Display and print co-channel and adjacent-channel assignments on a background map display.		X	Not a $JSMS_w$ capability
3.2.7	Provide an option that creates an allotment plan or section within an allotment plan, and then inserts nomination results.		X	Not a $JSMS_w$ capability

ID	Requirement	IOC	POST IOC	Remarks
3.2.8	Load frequency nomination process results, after converting them into frequency proposals/assignments, into the database.	X		
4. VALIDATE PROPOSALS				
4.1 Determine Regulatory Compliance of Frequency Proposal(s)				
4.1.1	Select a proposal(s) for compliance processing that includes Validation and Allocation checks.	X		
4.1.2	Check U. S. compliance of proposals.	X		
4.1.3	Select compliance checks to be processed based on country or ITU region.		2	
4.1.4	Select/deselect individual compliance checks to be processed.		3	
4.1.5	Determine the proposal's conformance to each selected compliance check.	X		
4.1.6	Display the processing status of the compliance checks.	X		
4.1.7	Display compliance results and proposal, simultaneously.	X		
4.1.8	Print resultant compliance message.	X		
4.1.9	Determine standardization check compliance, based on centrally distributed Standardization tables.		2	
4.1.10	Allow user to override compliance results and annotate override.	X		
4.1.11	Allow user to select individual validation checks for temporary proposals.		2	
4.2 Display or Print Compliance Criteria				
4.2.1	Locate a specific allocation or validation check.	X		
4.2.2	Display and print user-selected validation check specifications.	X		
4.2.3	Display and print user-selected allocation check specifications.	X		

5. VIEW/MAINTAIN SPECTRUM MGMT COORDINATION PROCEDURES PROPOSALS

5.1 Maintain Spectrum Management Guidance and Command Policy Data

ID	Requirement	IOC	POST IOC	Remarks
5.1.1	Add, modify, or delete the command spectrum management policy		3	
5.1.2	Add, modify, or delete host nation frequency bands potentially available for U.S. military use		2	
5.1.3	Add, modify, or delete host nation coordination procedures		3	
5.1.4	Add, modify, or delete JTF Joint Frequency Management Office (JFMO) stand-up template and checklist data		2	
5.1.5	Add, modify, or delete spectrum-use request procedures		3	
5.1.6	Add, modify, or delete procedures for introducing new equipment into the Area of Responsibility (AOR).		3	
5.1.7	Add, modify, or delete procedures for reporting interference.		3	

5.2 Maintain Spectrum Management Contact and Coordination Data

5.2.1	Add, modify, or delete proposal coordination data requirements.		4	
5.2.2	Add, modify, or delete proposal coordination format requirements.		4	
5.2.3	Add, modify, or delete proposal coordination submission requirements.		4	

6. GENERATE ALLOTMENTS

6.1 Import Frequency Resource Lists and Allotment Plans

6.1.1	Import frequency nomination results as allotment frequency resource list.	X		Save as a file
6.1.2	Import allotment frequency resource list from an ASCII text file.	X		
6.1.3	Import allotment frequency resource list from an RBECS exported file.	X		
6.1.4	Import allotment frequency resource list from an SFAF text file.	X		

ID	Requirement	IOC	POST IOC	Remarks
6.1.5	Import allotment plan(s) from disk files.	X		
6.1.6	Generate allotment frequency resource list based on frequency band specification (start, stop, and increment).	X		
6.1.7	Import Joint CEOI (RBECS follow on) frequency resource from disk file.		3	
6.2 Edit Allotment Plans				
6.2.1	Add, edit, delete, or duplicate allotment plan(s).	X		
6.2.2	Add, modify, copy, or delete allotment plan title, administrative data, plan sections, plan section names, and plan section frequency lists.	X		
6.2.3	Add, or delete frequencies in the allotment frequency resource list.	X		Removed "modify, copy,"
6.2.4	Manage multiple allotment plans.	X		
6.2.5	Maintain allotment plans by user-specified identifiers and categories (such as for Operations Plan (OPLAN)s and CONOPs).	X		
6.2.6	Create frequency proposals in SFAF from an allotment plan.	X		
6.2.7	Create frequency proposals in NATO ADEF from an allotment plan.		1	
6.2.8	Purge all or selected allotment plans from the database.	X		
6.2.9	Print allotment plan(s).	X		
6.2.10	Allow for allotment plan sections from AA-ZZ inclusive.		X	Not a $JSMS_w$ capability
6.2.11	Compare existing allotment plans for common frequencies.		3	
6.2.12	Compare existing allotment plans against an RBECS follow-on import.		2	
6.2.13	Provide allotment plan frequency query capability.		2	

ID	Requirement	IOC	POST IOC	Remarks
6.3 Export Allotment Plans				
6.3.1	Export allotment plans to disk.	X		
6.3.2	Export allotment plan(s) to an Automated Digital Network/Defense Message System/Defense Message System (AUTODIN)/DMS) acceptable format.	X		
6.3.3	Export allotment plan(s) in RBECS compatible format.	X		
6.3.4	Export allotment plan(s) as SFAF.	X		
6.3.5	Include user-defined Power and Restriction values in the RBECS export.		2	
6.3.6	Allow a user-defined file name for the RBECS export; file extensions will be automatically created using RBECS predefined values.		2	
6.3.7	Allow user to select an individual allotment plan section(s) for export.	X		
6.3.8	Accommodate extended frequency bands in RBECS exports.		2	
6.4 Schedule Frequencies in An Allotment Plan				
6.4.1	Select one of several allotment plans from which to schedule frequencies.	X		
6.4.2	Allow a frequency usage to be scheduled to a one-minute resolution.		X	Not a $JSMS_w$ capability
6.4.3	Select a start date, end date, and unit name for each scheduled frequency.	X		
6.4.4	Display the frequency, emission, and power for each frequency available within the allotment plan.	X		
6.4.5	Query the Scheduler for a single frequency to determine its disposition within the schedule.	X		Replaced “allotment plan” with Scheduler
6.4.6	Query the schedule using a start date and stop date to determine the available frequencies between those dates.	X		

ID	Requirement	IOC	POST IOC	Remarks
6.4.7	Automatically schedule frequencies based on query results (i.e., after displaying the results of an available frequency query, the user can highlight the frequencies in the list for scheduling).	X		
6.4.8	Consider power and emission restrictions when scheduling a frequency or frequencies.	X		
6.4.9	Consider tuning range and tuning increment when scheduling a frequency or frequencies.	X		
6.4.10	Consider spectral overlap as a user-selectable option when scheduling a frequency or frequencies.		X	
6.4.11	Double schedule a frequency with no frequency engineering considerations (i.e., allow more than one user to use a frequency at the same time).	X		
6.4.12	Double schedule a frequency with frequency engineering considerations.		4	
6.4.13	Allow for user-defined queries.	X		
6.4.14	Print a report that contains a list of frequencies, their corresponding emission designators and powers, and the effective dates for a particular unit.	X		
6.4.15	Save a file in ASCII format that contains a list of frequencies, their corresponding emission designators and powers, and the effective dates for a particular unit.		X	Not a $JSMS_w$ capability
6.4.16	Exchange a user-specified frequency schedule(s) between SPECTRUM XXI users.		2	
7. MANAGE TEMPORARY FREQUENCY RESOURCES				
7.1 Manage HF Frequency Resources				
7.1.1	Access the local frequency resource list.		2	
7.1.2	Assign frequencies, based on propagation characteristics, to the Near Vertical Incident Skywave (NVIS) (short, medium, or long paths) and groundwave nets from a selected frequency resource.		2	
7.1.3	Assign frequencies to groundwave nets from a selected frequency resource.		2	
7.1.4	Consider radio tuning ranges and channels when making skywave (short, medium, or long paths) and groundwave frequency assignments.		2	

ID	Requirement	IOC	POST IOC	Remarks
7.1.5	Allow the user to manually pre-assign frequencies.		2	
7.1.6	Maintain the pre-assigned frequencies during the assignment process and afford appropriate frequency protection to these assignments.		2	
7.1.7	Ignore previous frequency assignments during the assignment process.		2	
7.1.8	Consider co-channel, adjacent-channel, and other frequency protections.		2	
7.2 Manage VHF AGA Frequency Resources				
7.2.1	Access local frequency resource list.		2	
7.2.2	Select VHF AGA frequency requests that have not been fulfilled and assign appropriate frequencies.		2	
7.2.3	Assign frequencies based on user-specified frequency resource, ground site locations, service volume structures, and assignment criteria.		2	
7.2.4	Consider background frequency assignments.		2	
7.2.5	Consider frequency and distance separation requirements for cosite situations and desired-to-undesired Signal-to-Interference ratio (S/I) criteria for intersite situations.		2	
7.3 Manage UHF AGA Frequency Resources				
7.3.1	Assess local frequency resource list.		2	
7.3.2	Select UHF AGA frequency requests that have not been fulfilled and assign appropriate frequencies.		2	
7.3.3	Assign frequencies based on user-specified frequency resource, ground site locations, service volume structures, and assignment criteria.		2	
7.3.4	Consider background frequency assignments.		2	
7.3.5	Consider frequency and distance separation requirements for cosite situations and desired-to-undesired S/I criteria for intersite situations.		2	

ID	Requirement	IOC	POST IOC	Remarks
7.4 Manage LOS/TROPO Multichannel Frequency Resources				
7.4.1	Access local frequency resource list.		2	
7.4.2	Assign frequencies to VHF, UHF, Super High Frequency (SHF) LOS, and TROPO multichannel links from a user-specified resource.		2	
7.4.3	Consider frequency and other restrictions when making an automated frequency assignment for VHF, UHF, SHF LOS, and TROPO equipment.		2	
7.4.4	Pre-assign frequencies so the assignment process will not overwrite pre-assigned frequencies and all appropriate frequency protection.		2	
7.4.5	Provide user-selected control of frequency assignment criteria (FDR versus predefined criteria).		2	
7.4.6	Determine TROPO link reliability.		2	
7.5 Manage Single Channel Satellite Frequency Resources				
7.5.1	Generate a single channel Satellite Access Request (SAR) for a particular net.		X	Not a $JSMS_w$ capability
7.5.2	Electronically issue the SAR to the appropriate frequency authority and satellite control location.		X	Not a $JSMS_w$ Capability
7.5.3	Receive and view, in a windows-based environment, a Satellite Access Authorization (SAA).		X	Not a $JSMS_w$ capability
7.5.4	Calculate the position of a satellite relative to a ground station in order to assist the user in pointing a ground antenna.		X	Not a $JSMS_w$ capability
7.5.5	Consider single channel fixed satellite frequencies within the UHF and SHF bands when making other frequency assignments in those bands.		2	Not a $JSMS_w$ capability
7.5.6	Report satellite communications interference incidents electronically to appropriate agencies.		X	Not a $JSMS_w$ capability

ID	Requirement	IOC	POST IOC	Remarks
7.5.7	Identify potential sources of reported satellite communications interference within a particular area of interest.		2	Not a $JSMS_w$ capability
7.6 Manage Multichannel Satellite Frequency Resources				
7.6.1	Generate a multichannel SAR based on network engineering results.		X	Not a $JSMS_w$ capability
7.6.2	Electronically send SAR to the appropriate satellite controller.		X	Not a $JSMS_w$ capability
7.6.3	Receive and view, in a windows-based environment, an SAA.		X	Not a $JSMS_w$ capability
7.6.4	Calculate protection contours in accordance with ITU Appendix 28 and transmit them electronically to appropriate agencies.		X	Not a $JSMS_w$ capability
7.6.5	Report satellite communications interference incidents electronically to appropriate agencies.		X	Not a $JSMS_w$ capability
7.6.6	Identify potential sources of reported satellite communications interference within a particular area of interest.		2	
7.7 Manage MILSTAR Satellite Frequency Resources				
7.7.1	Consider MILSTAR satellite frequencies when making other frequency assignments in those bands and in other appropriate bands.		4	
7.7.2	Indicate to the staff user, which MILSTAR equipment will present or be subject to the least amount of interference when introduced into the environment.		4	
7.7.3	Report a MILSTAR interference incident electronically to appropriate agencies.		4	
7.7.4	Identify potential sources of reported MILSTAR satellite communications interference within a particular area of interest.		1	
7.8 Support Additional Equipment/Band Specific Assignment Models				
7.8.1	Reuse existing assignment model components.		2	
7.8.2	Automatically select appropriate assignment model based on equipment or frequency band.		2	

7.9. Manage Tactical Radar Use

7.9.1 Maintain Analysis Data

ID	Requirement	IOC	POST IOC	Remarks
7.9.1.1	Maintain platform versus equipment complement (Fit) data for spectrum dependent equipment.		1	
7.9.1.2	Maintain platform and system characteristic data.		1	
7.9.1.3	Maintain regulatory restrictions for all platforms and system. equipment based on international and national restrictions.		1	
7.9.1.4	Maintain EMC criteria rules for system employment in battle force configurations.		1	
7.9.1.5	Maintain equipment assignment restriction for all systems based on Host Nation guidance.		1	

7.9.2 Acquire Operational Data

7.9.2.1	Acquire background assignments for the specified area of operations expressed as a location, a platform, or a force track.		1	
7.9.2.2	Acquire JRFL data for the specified area of operations.		1	
7.9.2.3	Allow the user to identify equipment mode usage for inclusion in the radar assignment process.		1	
7.9.2.4	Allow the user to enter unassigned spectrum use for inclusion in the radar assignment process.		1	

7.9.3 Plan Radar Use

7.9.3.1	Determine the operational restriction imposed by external regulatory and assignment limitations.		1	
7.9.3.2	Determine the initial radar spectrum use plan including frequency, pulse characteristics, antenna “cut-outs,” and minimum distance separations.		1	
7.9.3.3	Display victim/source pairs for all identified potential EMI conditions.		1	
7.9.3.4	Display the list of operational restrictions associated with the current spectrum use plan.		1	

ID	Requirement	IOC	POST IOC	Remarks
7.9.3.5	Allow the user to prioritize operational restrictions and recalculate radar assignments.		1	
7.9.3.6	Assess the impact of radar plan on existing environment.		1	
7.9.4 Display Spectrum Occupancy				
7.9.4.1	Display platform, system, and mode versus frequency for individual or sets of platforms or systems.		1	
7.9.4.2	Display assignment and operational restrictions in terms of geographic locations, antenna motions (cut-outs), and power limits.		1	
7.9.4.3	Display background frequency assignments on a map background with platform locations and tracks.		1	
7.9.4.4	Print all generated plots.		1	
7.9.5 Determine Hazard Conditions				
7.9.5.1	Maintain Hazardous Effects of Radiation on Ordnance (HERO), Hazardous Effects of Radiation on Personnel (HERP), and Hazardous Effects of Radiation on Fuel (HERF) hazard criteria.		1	
7.9.5.2	Determine HERO conditions for generated radar use assignments.		1	
7.9.5.3	Determine HERP conditions for generated radar use assignments.		1	
7.9.5.4	Determine HERF conditions for generated radar use assignments.		1	
7.9.6 Generate Plans and Reports				
7.9.6.1	Generate analysis, assignments, and hazard reports including intermediate results.		1	
7.9.6.2	Generate SFAF messages for proposed radar frequency assignments.		1	
7.9.6.3	Generate EMCAP Plan messages for proposed radar use plan.		1	

8. ENGINEER NETWORKS AND LINKS

8.1 Engineer HF Antennas

ID	Requirement	IOC	POST IOC	Remarks
8.1.1	Compute and display the near-field intensity as a function of distance.		2	
8.1.2	Determine optimum antenna type and orientation and display results.		2	
8.1.3	Print HF antenna displays.		2	

8.2 Engineer HF Networks and Links

8.2.1	Calculate and display the Maximum Usable Frequency MUF, Lowest Usable Frequency (LUF), and FOT for a particular link for a 24-hour period.	X		
8.2.2	Calculate skywave propagation characteristics based on default or user-entered 10.7-centimeter flux or sunspot number.	X		
8.2.3	Calculate and display the propagation loss for a groundwave mode of propagation.		X	Not a $JSMS_w$ capability
8.2.4	Calculate and display the coverage area for an HF skywave link including skip zones, in tabular and graphical format.		X	Not a $JSMS_w$ capability
8.2.5	Calculate and display the field strength from a particular HF transmitter to points in space in and around the transmitter in tabular and graphical format.		X	Not a $JSMS_w$ capability
8.2.6	Calculate and display the field strength of a HF transmitter and all other transmitters net receivers in tabular and graphical format.		3	
8.2.7	Calculate and display the skywave ray paths and modes between a transmitter and a receiver in tabular and graphical format.		3	
8.2.8	Calculate and display the HF frequency bands intercept characteristics in tabular and graphical format.		4	
8.2.9	Calculate and graphically display the auroral oval, based on user specified environmental conditions.		X	Not a $JSMS_w$ capability

ID	Requirement	IOC	POST IOC	Remarks
8.2.10	Calculate and display platform track and propagation information between a fixed point and waypoints along a user-specified track.		4	
8.2.11	Print any HF networks and links displays.		X	Not a $JSMS_w$ capability
8.2.12	Calculate and display propagation predictions for NVIS paths.		3	
8.3 Engineer VHF Networks and Links				
8.3.1	Display the location of Combat Net Radio (CNR) nets on a map background.		3	
8.3.2	Display user data regarding the net structure for CNR nets on a map background.		3	
8.3.3	Display the location of Mobile Subscriber Radio Telephone/Radio Access Unit (MSRT/RAU) equipment on a map background.		3	
8.3.4	Compute radio line-of-sight (RLOS) for a user-specified area and graphically display these results on a map background.	X		
8.3.5	Compute and display terrain-dependent propagation received signal levels from a fixed transmitter location within a user-specified area.	X		
8.3.6	Compute and display terrain-dependent power-density levels within a user-specified area for a fixed transmitter location.		X	Not a $JSMS_w$ capability
8.3.7	Calculate and display the ray path, fresnel zone (0.3, 0.6, or 1.0 user-selected), and terrain profile between two points.	X		
8.3.8	Print any VHF networks and links displays.		3	
8.4 Engineer UHF/SHF Networks and Links				
8.4.1	Display network and link stations (node centers, small extension nodes, and large extension nodes) and other appropriate equipment as icons on a map background.		3	
8.4.2	Compute RLOS for a user-specified area and display graphical result on a map background.	X		

ID	Requirement	IOC	POST IOC	Remarks
8.4 Engineer UHF/SHF Networks and Links				
8.4.3	Determine RLOS and terrain-dependent propagation path loss between two points.	X		
8.4.4	Compute and display terrain-dependent received signal levels within a user-specified area for a fixed transmitter location on a map background.	X		
8.4.5	Compute and display terrain-dependent power-density levels within a user-specified area for a fixed transmitter location on a map background.		X	Not a $JSMS_w$ capability
8.4.6	Calculate and display the ray path, fresnel zone (0.3, 0.6, or 1.0 user-selected), and terrain profile between two points.	X		
8.4.7	Allow the user to increase the antenna height at either end of a link and recompute and graph the ray path, fresnel zone, and propagation loss.	X		
8.4.8	Display local terrain elevations about a user-specified point in order to allow the user to select an antenna site based on that local terrain information.	X		
8.4.9	Print any UHF/SHF networks and links displays.		3	
8.5 Engineer Satellite Access				
8.5.1	Compute and display distance and angles from an earth station.		X	Not a $JSMS_w$ capability
8.5.2	Calculate and display the azimuth and elevation angles from an earth station.	X		
8.5.3	Determine and display earth-station coordinate contours.		X	Not a $JSMS_w$ capability
8.5.4	Determine and display satellite link reliability to include scintillation effects.		3	
8.5.5	Engineer DCS entry.		3	
8.5.6	Engineer ground mobile force (GMF) networks.		3	
8.5.7	Print any satellite access displays.		X	Not a JSMSw capability

8.6 Access Miscellaneous Analysis Tools

ID	Requirement	IOC	POST IOC	Remarks
8.6.1	Compute and display intermodulation products and harmonic frequencies.		X	Not a $JSMS_w$ capability
8.6.2	Compute and display on-tune and off-tune FDR.		X	Not a $JSMS_w$ capability
8.6.3	Generate X-Y and polar plots.		X	Not a $JSMS_w$ capability
8.6.4	Provide geographical coordinate conversion between degree-minute-second, decimal degree, and military grid formats.		X	Not a $JSMS_w$ capability
8.6.5	Account for local magnetic declination in all azimuth calculations.		X	Not a $JSMS_w$ capability
8.6.6	Provide common nomogram look-up tables.		3	
8.6.7	Print miscellaneous analysis tool displays where possible.		X	Not a $JSMS_w$ capability
ID	**New Proposed Requirement(s)**	**Remarks**		
8.6.8	Provide a JTIDS planning and deconfliction tool.	More Research Required		

8.7 Access User-Specified Geophysical and Engineering Parameters

8.7.1	Provide geographically sensitive geophysical and engineering default parameters.		3	
8.7.2	Allow user over-ride of all geophysical and engineering default parameters.	X		
8.7.3	Use user-accessible geophysical and engineering parameters in the analysis.	X		

8.8 Support Additional Equipment/Band Specific Engineering Models

8.8.1	Reuse existing engineering model components.		3	
8.8.2	Automatically select the appropriate engineering model based on equipment or frequency band.		3	

9. VIEW/MAINTAIN (CEOI) DATA

9.1 Maintain CEOI Data

ID	Requirement	IOC	POST IOC	Remarks
9.1.1	Display current CEOI data.	X		
9.1.2	Delete all or selected CEOIs from the current CEOI file.	X		
9.1.3	Deconflict multiple CEOI editions based on frequency, call sign, or call word.		2	
9.1.4	Sort CEOI by user-specified fields (e.g., frequency, and unit).	X		
9.1.5	Select/deselect CEOI entries as JRFL entries.	X		
9.1.6	Import and View the Revised SINCGARS ICOM/Non-ICOM Support Software (RSINISS) resource.		X	Not a $JSMS_w$ capability
9.1.7	Identify active CEOI editions for inclusion in JRFL considerations.		3	
9.1.8	Define user-specified area of interest for JCEOI/CEOI operations.		3	

9.2 Load CEOI Data

9.2.1	Load an RBECS-formatted file.	X		
9.2.2	Load an RBECS Follow-on CEOI/SOI formatted file.		2	

9.3 Generate CEOI Reports

9.3.1	Specify selected CEOI(s).	X		
9.3.2	Specify the sort of the CEOI report.	X		
9.3.3	Specify record search criteria.	X		
9.3.4	Print CEOI reports.	X		
9.3.5	Export CEOI reports to an ASCII file.		X	

10. DETERMINE COMPOSITE FORCE SPECTRUM REQUIREMENTS AND COMPATIBILITY				
10.1 Determine Composite Force Spectrum Requirements and Compatibility				
ID	Requirement	IOC	POST IOC	Remarks
10.1.1	Add, modify, or delete the spectrum-use requirements database based on unit-type and units.		2	
10.1.2	Import spectrum-use data from a disk file.		2	
10.1.3	Export spectrum-use data to a disk file.		2	
10.1.4	Generate a composite spectrum-use requirement based on individual spectrum-use requirements submissions.		2	
10.1.5	Acquire a current force structure list and relate the list to the spectrum-use requirements.		2	
10.1.6	Print spectrum-use requirements using a user-specified format.		2	
10.2 Identify Potential Spectrum Use Conflicts				
10.2.1	Determine the basic compatibility of a force structure based on its spectrum-use requirements database, tuning range, power, bandwidth, and location.		2	
10.2.2	Identify unsupported or conflicting spectrum use requirements considering all the spectrum-use of the joint forces, including communication and non-communications.		2	
10.2.3	Identify conflicts between spectrum use requirements and the background environment.		2	
10.3 Generate Supportability Estimate Based on Changes in Force Deployment				
10.3.1	Identify forces involved in deployment or location changes.		3	
10.3.2	Identify current force frequency assignments and spectrum use.		3	
10.3.3	Identify forces affected by the change in other force deployments.		3	
10.3.4	Generate, display and graph frequency allotment and assignment adjustments to support changes in force deployment.		3	

11. VIEW AND MAINTAIN JRFL DATA

11.1 Manage the JRFL Database

ID	Requirement	IOC	POST IOC	Remarks
11.1.1	Create, modify, or delete JRFL records.	X		
11.1.2	Specify record search criteria.	X		
11.1.3	Delete all records from the JRFL database.	X		
11.1.4	Access and copy the user-selected frequency assignment and the CEOI data into the JRFL.	X		
11.1.5	Highlight JRFL data in all frequency assignment displays and prints.		2	
11.1.6	Allow user-specified inclusion of JRFL data in Nomination and Interference Analysis functions.		2	
11.1.7	Allow user-specified inclusion of JRFL data in EW Deconfliction.	X		
11.1.8	Provide the option for the automatic deletion of JRFL entries upon expiration.		2	

11.2 Generate JRFL Reports

11.2.1	Generate, display, or print a standard JRFL summary report (three levels; summary one line (Class, Frequency, Status), summary (Class, Unit, Period, Power, Status, Agency Serial Number), and Detailed.	X		
11.2.2	Specify the sort order of the JRFL report (e.g., CEOI, net name, and frequency, status, period).	X		
11.2.3	Generate, display, or print a user-selected JRFL report.	X		
11.2.4	Generate, display, or print a user-defined JRFL report.		X	Not a $JSMS_w$ capability

11.3 Import and Export JRFL Data

11.3.1	Import JRFL data from a disk file.	X		
11.3.2	Import JRFL data from AUTODIN/DMS files.		3	
11.3.3	Export JRFL data to disk file in SPECTRUM XXI format.	X		

ID	Requirement	IOC	POST IOC	Remarks
11.3.4	Export JRFL data in AUTODIN/DMS compatible format.	X		
11.3.5	Export JRFL to Web based server.		2	
11.3.6	Import JRFL from Web based server.		2	
12. PERFORM EW DECONFLICTION				
12.1 Specify Analysis Characteristics				
12.1.1	Specify jammer (friendly and hostile) characteristics and save for analysis.	X		
12.1.2	Specify jammer mission characteristics for ground deployments (location, pointing angle).	X		
12.1.3	Specify jammer mission characteristics for airborne deployments (track, orbit, pointing angles).		3	
12.1.4	Base analysis on terrain-dependent propagation if terrain data is available.	X		
12.1.5	Base analysis on smooth-earth propagation if terrain data is not available.	X		
12.1.6	Allow user-specification of background frequency assignment types to be included in the analysis.		X	Not a $JSMS_w$ capability
12.1.7	Perform analysis for band jammers.		2	
12.1.8	Import Web-based request for analysis.		2	
12.1.9	Input a list of jammer frequencies for analysis.		2	
12.2 Determine Potential Spectrum Conflicts				
12.2.1	Determine any conflict between frequency assignments, JRFL, CEOI and EW operations.	X		
12.2.2	Consider mission and frequency assignment start and stop dates.	X		
12.2.3	Display the status of analysis processing.	X		
12.2.4	Allow a spectrum conflict analysis from an airborne platform utilizing a “racetrack” orbit.		3	

ID	Requirement	IOC	POST IOC	Remarks
12.2.5	Consider active dates for temporary frequency assignments and JRFL entries during analysis.	X		
12.2.6	Consider mission and frequency assignment start and stop times.		X	Not a $JSMS_w$ capability
12.3 Display Potential Conflicts				
12.3.1	Display the jammer and the potentially affected assignments (tactical and background) on a map background.	X		
12.3.2	Display a listing of the potentially affected JRFL entries.	X		
12.3.3	Display a listing of the potentially affected CEOI nets.	X		
12.3.4	Display a summary list of the potentially affected frequency assignments in SFAF.		X	Not a J $JSMS_w$ capability
12.3.5	Display a summary list of the potentially affected frequency assignments in NATO ADEF.		1	
12.3.6	Include the predicted level of interference in all displays.		X	Not a $JSMS_w$ capability
12.3.7	Display the full SFAF information on selected records.		2	
12.4 Generate Spectrum Conflict Reports				
12.4.1	Specify report type.	X		
12.4.2	Support user-defined reports.		X	Not a $JSMS_w$ capability
12.4.3	Print EW conflict reports.	X		
12.4.4	Export report file to a disk.		X	Not a $JSMS_w$ capability
12.4.5	Export report file in Web-browser accessible format.		3	
13. ANALYZE TERRAIN AND PROPAGATION				
13.1 Compute Path Profile Between Two Points				
13.1.1	Compute and display propagation loss based on smooth earth models.		X	Not a $JSMS_w$ capability
13.1.2	Compute and display propagation loss based on a rough earth model.	X		

ID	Requirement	IOC	POST IOC	Remarks
13.1.3	Display sites, terrain profile, fresnel zones and radio wave path graphically.	X		
13.1.4	Support the use of Level 1 Digital Terrain Elevation Data (DTED)	X		
13.1.5	Print all path profile displays.	X		
13.2 Compute Propagation Loss for Areas (Contour Plots)				
13.2.1	Compute and display propagation loss, based on smooth earth models.		X	Not a $JSMS_w$ capability
13.2.2	Compute and display propagation loss, based on a rough earth model.	X		
13.2.3	Compute and display the radio horizon about a location.	X		
13.2.4	Generate an LOS coverage display.	X		
13.2.5	Display an LOS, terrain elevation, and signal strength contours on a map background.	X		
13.2.6	Compute and display a composite propagation loss contour for one or two sites on a map background.		3	
13.2.7	Support the use of DTED Level I terrain elevation data.	X		
13.2.8	Print all propagation loss displays.	X		
13.3 Generate Map-Based Displays				
13.3.1	Use map products to provide basic map-based functionality.	X		
13.3.2	Specify an operational area by locating two corners, by locating a point and a radius, or by clicking and dragging on a map background.		X	Not a $JSMS_w$ capability
13.3.3	Locate/display up to 125 high points within a user-defined area, subject to user-defined separation criteria.		2	
13.3.4	Accept location coordinate inputs from the user in either latitude/longitude, MILGRID, or Universal Transverse Mercator (UTM) formats.		X	Not a $JSMS_w$ capability
13.3.5	Display political boundary data.	X		
13.3.6	Display Digital Chart of the World feature data.		X	Not a $JSMS_w$ capability

ID	Requirement	IOC	POST IOC	Remarks
13.3.7	Provide user map tools including zoom, location and query.		X	Not a $JSMS_w$ capability
13.3.8	Provide standard DoD map symbology.		2	
13.3.9	Print all map-based displays.	X		
13.3.10	Perform a user-selected datum conversion for all map displays.		2	
13.3.11	Save map display as a bitmap.	X		
14. PREPARE AND PROCESS INTERFERENCE REPORTS				
14.1 Maintain Interference Events and Resolutions				
14.1.1	Create, modify, or delete interference reports.	X		
14.1.2	Display existing interference reports.	X		
14.1.3	Print selected interference reports.	X		
14.1.4	Duplicate an interference report.	X		
14.1.5	Track the status of an interference report.		1	
14.1.6	Electronically submit an interference report.		X	Not a $JSMS_w$ capability
14.2 Modify An Existing Interference Report				
14.2.1	Edit interference victim, source, and impact information.	X		
14.2.2	Import results from analysis models.		3	
14.2.3	Edit interfering system and resolution information.	X		
14.3 Import and Export Interference Reports				
14.3.1	Import an interference report in SPECTRUM XXI format from a disk file.	X		
14.3.2	Export interference records to a disk file in ASCII format.		X	Not a $JSMS_w$ capability
14.3.3	Import Interference Report information from a Web server.		2	
14.3.4	Export Interference Report in Web browser accessible format.		2	

ID	Requirement	IOC	POST IOC	Remarks
14.3.5	Export interference reports to a disk file in SPECTRUM XXI format.	X		
14.4 Retrieve Interference Report Data				
14.4.1	Locate records based on user-specified criteria.	X		
14.4.2	Select or deselect record(s) from those identified by the retrieval.	X		
15. ANALYZE INTERFERENCE				
15.1 Maintain Analysis Inputs				
15.1.1	Specify required spectrum use (amount of spectrum needed).	X		
15.1.2	Specify transmitter characteristics and location data.	X		
15.1.3	Specify receiver characteristics and location.	X		
15.1.4	Select equipment from the spectrum certification database and populate parametric analysis inputs.	X		
15.1.5	Maintain engineering and geophysical data default values.	X		
15.1.6	Base analysis on terrain-dependent propagation if terrain data is available.	X		
15.1.7	Base analysis on smooth-earth propagation if terrain data is not available.	X		
15.1.8	Specify the type of frequency assignments to include or exclude in the analysis.		X	Not a $JSMS_w$ capability
15.1.9	Save analysis default conditions.	X		
15.1.10	Restore previous analysis inputs.	X		
15.1.11	Provide transmitter and receiver technical characteristic values (default) based on more than five frequency bands.		2	
15.1.12	Allow user to specify analysis model (TIREM/SEM or Spectral Overlap).		1	
15.1.13	Label nomination results with analysis model.	X		

15.2 Analyze Frequency Assignment Interactions

ID	Requirement	IOC	POST IOC	Remarks
15.2.1	Process the interference analysis in accordance with national guidelines (i.e., NTIA).	X		
15.2.2	Process the interference analysis in accordance with international guidelines (i.e., ITU).		3	
15.2.3	Consider frequency assignment operational dates in the analysis.	X		
15.2.4	Display the analysis results in accordance with national guidelines (i.e., NTIA, Interference Conflict Margins (ICM)).	X		
15.2.5	Display the analysis results in accordance with international guidelines.		3	
15.2.6	Display the analysis results over a map background.	X		
15.2.7	Print the analysis results, using standard report formats.	X		
15.2.8	Print the analysis results, using user-defined fields.		2	
15.2.9	Save results as an ASCII file.		X	Not a $JSMS_w$ capability
15.2.10	Calculate a signal-to-noise ratio (S/N).		X	Not a $JSMS_w$ capability
15.2.11	Calculate a signal-to-interference ratio (S/I).		X	Not a $JSMS_w$ capability
15.2.12	Calculate harmonic frequencies.	X		
15.2.13	Calculate intermodulation products.		X	Not a $JSMS_w$ capability
15.2.14	Consider polarization mismatch during mainbeam interference calculations.	X		
15.2.15	Consider band frequency assignments during interference calculations.		1	
15.2.16	Ensure that area assignments considered are appropriate to the area under analysis.	X		
15.2.17	Calculate an I/N.	X		

16. MANAGE SPECTRUM CERTIFICATION TRANSACTIONS

16.1 Retrieve Spectrum Certifications

ID	Requirement	IOC	POST IOC	Remarks
16.1.1	Locate records based on predefined, user-specified, or stored and retrieved criteria.	X		
16.1.2	Sort retrieved records based on user specified fields.	X		
16.1.3	Select/deselect records for further processing (exporting and printing).	X		

16.2 Edit Spectrum Certification Requests

16.2.1	Create, modify, or delete spectrum certification requests.	X		
16.2.2	Create a user-specified page(s).	X		
16.2.3	Add, duplicate, or delete individual spectrum certification request pages.	X		
16.2.4	Change the J/F 12 number or NTIA serial identification number of the spectrum certification request.	X		
16.2.5	Store a graphic (line-diagram) file with the spectrum certification request.	X		
16.2.6	Provide capability to view graphic (line-diagram) file with the spectrum certification request.	X		

16.3 Specify Coordination Requirements

16.3.1	Add, modify, or delete the list of coordination requirements for each spectrum certification request.		3	
16.3.2	Automatically determine coordination requirements based on geographical deployment and frequency band.		3	
16.3.3	Maintain local, free-text comments on the spectrum certification request.		3	

16.4 Track Spectrum Certification Transactions Status

16.4.1	Maintain status of each spectrum certification request and provide record locking for a spectrum certification request that has a status of pending.		3	

ID	Requirement	IOC	POST IOC	Remarks
16.4.2	Automatically set the spectrum certification request status to pending when the spectrum certification request is forwarded for action.		3	
16.4.3	Automatically set the spectrum certification request status to pending when spectrum certification request is forwarded to a host nation for action.		3	
16.4.4	Automatically update the proposal's status with the host nation's response status (approved, tabled, rejected, etc.) and include the technical and operational restrictions.		3	
16.4.5	Automatically update the spectrum certification request's status when a spectrum certification request is returned to the requester.		3	
16.4.6	Automatically update the spectrum certification request's status to approved when it is certified by a host nation.		3	
16.4.7	Add, modify, or delete the list of status codes representing a spectrum certification requests disposition.		3	
16.4.8	Automatically update designated spectrum management sites' databases with the spectrum certification through distributed data exchange.		3	
16.4.9	Automatically update the Central Server site database with the spectrum certification through distributed data exchange.		3	
16.4.10	Maintain current spectrum certification data, based on received spectrum certification transactions.		3	
16.4.11	Maintain a spectrum certification request's coordination or approval status history.		3	
16.4.12	Display a spectrum certification request's coordination or approval status history.		3	
16.5 Import Spectrum Certification Transactions				
16.5.1	Import spectrum certification requests from a disk file.	X		
16.5.2	Import spectrum certifications from a disk file.	X		
16.5.3	Import spectrum certification requests in the Military Communications-Electronics Board (MCEB) or the Spectrum Planning Subcommittee (SPS) formats from a disk file.	X		

ID	Requirement	IOC	POST IOC	Remarks
16.6 Generate Host Nation Coordination Packages				
16.6.1	Generate a host nation version of the spectrum certification request identified by the country.		2	
16.6.2	Add, modify, or delete comments received from individual host nations.		2	
16.6.3	Display host nation comments.		2	
16.6.4	Retrieve host nation comments based on user-specified criteria.		2	
16.6.5	Print host nation comments.		2	
16.6.6	Access host nation comments from the frequency proposal editor.		2	
16.6.7	Track releasability by host nation and by releasable spectrum certification information elements.		3	
16.7 Export Spectrum Certifications				
16.7.1	Export one (or more) spectrum certification request(s) in MCEB or SPS formats to a disk file.	X		
16.7.2	Export a spectrum certification in a Spectrum Certification System (SCS) Analysis Tool compatible data file.	X		
16.8 Print Spectrum Certifications				
16.8.1	Select an application(s) to be printed.	X		
16.8.2	Choose MCEB or SPS format for print.	X		
16.8.3	Print multiple applications.	X		
16.8.4	Print an entire application.	X		
16.8.5	Print a user-specified page(s).	X		
16.8.6	Include NTIA and MCEB comments in print.		2	
16.8.7	Print the special handling for the application.	X		
16.8.8	Produce a summary print.	X		

17. DETERMINE DD 1494 COMPLIANCE

17.1 Determine Applicable Guidance

ID	Requirement	IOC	POST IOC	Remarks
17.1.1	Import spectrum certification data from a disk file.	X		
17.1.2	Specify applicable service types.	X		
17.1.3	Specify all applicable system identifiers.	X		
17.1.4	Determine applicable guidance automatically.	X		
17.1.5	Select applicable guidance.	X		
17.1.6	Select all applicable system service identifiers.	X		
17.1.7	Print user-selected guidance.	X		
17.1.8	Save user-selected guidance to a disk file in ASCII format.	X		

17.2 Check Compliance with Applicable Standards

17.2.1	Determine availability and consistency of input data.	X		
17.2.2	Edit system characteristics.	X		
17.2.3	Specify applicable station classes.	X		
17.2.4	Specify applicable radar type attributes.	X		
17.2.5	Print user-selected applicable standards and guidance or save to a disk file in ASCII format.	X		

17.3 Determine Emission Bandwidth Standard Compliance

17.3.1	Specify the applicable band and station type.	X		
17.3.2	Generate plot of emission versus bandwidth standard.	X		
17.3.3	Print plot of emission versus bandwidth standard.	X		
17.3.4	Save plot to a disk file.	X		

17.4 Calculate System Characteristics Approximations

ID	Requirement	IOC	POST IOC	Remarks
17.4.1	Calculate and graphically display the emission and the necessary bandwidth for amplitude, frequency, phase, and pulse modulated systems.	X		
17.4.2	Update mission and bandwidth models as new technologies and modulation techniques emerge.		3	
17.4.3	Calculate overall receiver sensitivity.	X		
17.4.4	Calculate receiver image rejection.	X		
17.4.5	Calculate compliance to NTIA power flux standards.	X		
17.4.6	Provide details on the characteristics approximations.	X		
17.4.7	Edit graphs with annotations.	X		
17.4.8	Print a graphic display on the printer with an option to save the display to a disk file.	X		

18. MAINTAIN SPECTRUM MANAGEMENT REFERENCE INFORMATION

18.1 Maintain Standard Spectrum Management Organization List

18.1.1	Add, modify, or delete records in the standard list of agency codes (SFAF Item 200).	X		
18.1.2	Add, modify, or delete records in the standard list of unified command codes (SFAF Item 201).	X		
18.1.3	Add, modify, or delete records in the standard list of unified command service codes (SFAF Item 202).	X		
18.1.4	Add, modify, or delete records in the standard list of agency bureau codes (SFAF Item 203).	X		
18.1.5	Add, modify, or delete records in the standard list of command codes (SFAF Item 204).	X		
18.1.6	Add, modify, or delete records in the standard list of subcommand codes (SFAF Item 205).	X		
18.1.7	Add, modify, or delete records in the standard list of installation frequency managers (SFAF Item 206).	X		

ID	Requirement	IOC	POST IOC	Remarks
18.1.8	Add, modify, or delete records in the standard list of operating unit codes (SFAF Item 207).	X		
18.1.9	Add, modify, or delete records in the standard list of user net codes (SFAF Item 208).	X		
18.1.10	Add, modify, or delete records in the standard list of Area Frequency Coordinator (AFC) codes (SFAF Item 209).	X		
18.2 Maintain Tables of Allocations				
18.2.1	Create a new table of allocations.		3	
18.2.2	Add, modify, or delete table of allocation band data.		3	
18.2.3	Add, modify, or delete host nation allocation table footnote, provision, comments and remarks data.		3	
18.2.4	Add, modify, or delete lists of channel allocations and plans.		3	
18.2.5	View the US&P and the ITU Table of Allocations.		X	Not a $JSMS_w$ capability
18.2.6	Include EA band designators and the coordination level in all Table of Allocation displays for the United States and Canada (Part of the EA Clearance Request Requirement - Section 23).		3	
18.3 Maintain Standard Geographic Names				
18.3.1	Add, modify, or delete records in the standard list of locations and associated latitude/longitude coordinates.	X		
18.3.2	Add, modify, or delete records in the list of state and area abbreviations.	X		
18.3.3	Maintain the user-entered (editable) list and the standardized list (non-editable) of geographic names.	X		
18.4 Maintain Standard Spectrum Management Data				
18.4.1	View records in the list of Station Class codes.	X		
18.4.2	View records in the standard list of Interdepartmental Radio Advisory Committee (IRAC) notes.	X		
18.4.3	View records in the list of System Identifier codes.	X		
18.4.4	Add, modify, or delete records in the list of manufacturer's abbreviations.	X		

ID	Requirement	IOC	POST IOC	Remarks
18.4.5	Add, modify, or delete records in the list of geostationary satellite locations.	X		
18.4.6	Add, modify, or delete records in the list of agency abbreviation codes.	X		
18.4.7	Provide the capability to search on manufacturer's codes and names.		X	Not a $JSMS_w$ capability
18.5 Update Reference Data Records				
18.5.1	Forward changes in the reference data to the Central Server.		3	
18.5.2	Distribute the updated reference data.		2	
18.5.3	Access and download the current reference data.		3	
18.5.4	Provide a SPECTRUM XXI system-wide phonebook directory capability.		3	
18.5.5	Support electronic exchange and distribution of standardized data and software updates.		4	
18.5.6	Access, download, integrate, and distribute NTIA standardization data.		4	
18.6 Maintain Nominal EA Materials Technical Parameters				
ID	**New Proposed Requirement(s)**	**Remarks**		
18.6.1	Locate EA materials technical parameter records based on predefined, user-defined, or stored and retrieved criteria.	Further research required		
18.6.2	Sort retrieved EA materials technical parameters records based on user-specified fields.	Further research required		
18.6.3	Select/deselect EA materials technical parameters records for further processing.	Further research required		
18.6.4	Provide nominal EA materials technical parameters record.	Further research required		
18.6.5	Add, modify, or delete user-defined EA materials technical parameters record.	Further research required		
18.6.6	Display and print the selected EA materials technical parameters (full record).	Further research required		

ID	New Proposed Requirement(s)	Remarks
18.6.7	Display and print the selected EA materials technical parameters record in a user-defined format.	Further research required

19. ACCESS / MANAGE GEOPHYSICAL DATA

19.1 Access Standard Topographic and Geographic Data

ID	Requirement	IOC	POST IOC	Remarks
19.1.1	Access and manage terrain elevation data.	X		
19.1.2	Access the Digital Chart of the World data.		X	Not a $JSMS_w$ capability
19.1.3	Access the foliage contour data.		4	
19.1.4	Provide the capability to create subsets of DTED data.		4	

19.2 Manage Spectrum Engineering Geographically Dependent Data

19.2.1	Access and manage climate contour data.		3	
19.2.2	Access and manage weather contour data.		3	
19.2.3	Access predicted sunspot data and/or user-entered sunspot data.	X		
19.2.4	Input and manage chirpsounder data		X	Not a $JSMS_w$ capability
19.2.5	Access and manage refractivity and other geophysical contour data.		3	
19.2.6	Access and manage radio-frequency background noise data.		3	

20. ACCESS EXERCISE AND OPERATIONS DATA

20.1 Access Joint Operations Planning Data

20.1.1	Access and view Course of Action (COA) alternatives.		3	
20.1.2	Access and view military orders data.		3	

20.2 Generate Crisis Action Planning Inputs				
ID	Requirement	IOC	POST IOC	Remarks
20.2.1	Generate the spectrum management inputs for the Joint Operations Planning and Execution System (JOPES).		3	
20.2.2	Generate the spectrum management inputs for Annex K of the OPLAN or COMPLAN.		2	
20.2.3	Create, modify, or delete the exercise and operational lessons learned data.		2	
21. SPECTRUM XXI INTERFACES				
21.1	Provide a two-way electronic interface (SIPRNET) with the Regional Servers for transfer of allotment plans, JRFL, standardized tables, interference reports, and CEOI data.		X	Not a $JSMS_w$ or a DCF capability
21.2	Provide a two-way floppy disk and file transfer interface for exchange of RBECS-generated files (e.g., CEOI) and files used by RBECS.	X		NOT RSINISS
21.3	Provide a two-way floppy disk and electronic interface with ISYSCON.		X	Due to ISYSCON delay
21.4	Provide a two-way floppy disk and electronic ASCII SFAF interface with ASPECTS.	X		
21.5	Provide a two-way floppy disk and electronic ASCII SFAF interface with $JSMS_w$.	X		
21.6	Provide a two-way floppy disk ASCII SFAF interface with the Mobile Subscriber Equipment (MSE) Network Planning Terminal (NPT).		X	
21.7	Provide a two-way electronic interface with GCCS.		3	
21.8	Provide a two-way electronic interface via DSVT (KY 68).		3	
21.9	Provide a two-way electronic interface with the Regional Servers for transfer of equipment technical data in SCS format.		4	
21.10	Interface with classified and unclassified email systems to notify users of assignment approval.		2	
21.11	Interface with CEOI automated tools (RBECS follow-on).		2	

ID	Requirement	IOC	POST IOC	Remarks
21.12	Interface with CTAPS/BMCS.		2	
21.13	Provide client-to-client data exchange via a digital secure voice telephone (DSVT) dialup capability.		2	
22. ESTABLISH DII INTEROPERABILITY				
22.1 Comply with Information Transfer Standards				
22.1.1	Comply with user interface services standards, where applicable.		4	
22.1.2	Comply with data management services standards, where applicable.		4	
22.1.3	Comply with data exchange services standards, where applicable.		4	
22.1.4	Comply with application platform cross-area services standards, where applicable.		4	
22.2 Comply with Information Processing Standards				
22.2.1	Comply with host standards, where applicable.		4	
22.2.2	Comply with facsimile standards, where applicable.		5	
22.2.3	Comply with network standards, where applicable.		2	
22.2.4	Comply with transmission media standards, where applicable.		4	
22.3 Comply with Information Modeling and Information Standards				
22.3.1	Comply with activity model standards, where applicable.		2	
22.3.2	Comply with data model standards, where applicable.		2	
22.3.3	Comply with DoD data definition standards, where applicable.		2	
22.4 Comply with Human-Computer Interface Standards				
22.4.1	Comply with commercial style guides, where applicable.	X		
22.4.2	Comply with the JTA, where applicable.		2	
22.4.3	Comply with domain-level style guides, where applicable.		3	

ID	Requirement	IOC	POST IOC	Remarks
22.4.4	Comply with system style guides, where applicable.		3	
22.5 Comply with Information Systems Security Standards				
22.5.1	Comply with existing information processing security standards, where applicable.	X		
22.5.2	Comply with COE information processing security standards, where applicable.	X		
22.5.3	Comply with information transfer security standards, where applicable.		2	
22.5.4	Comply with information modeling and information security standards, where applicable.		2	
22.5.5	Comply with human-computer interface standards, where applicable.		1	
22.5.6	Provide Top Secret (TS) marking for stand-alone operations.	X		
22.5.7	Provide multilevel security operations (unclassified/classified), pending availability of MLS technology.		1	
22.5.8	Provide firewall security for SPECTRUM XXI, pending availability of MLS technology.		1	
22.5.9	Provide network intrusion detection capability, pending availability of MLS technology.		1	

23. MANAGE ELECTRONIC ATTACK (EA) CLEARANCE REQUESTS

23.1 Retrieve EA Clearance Requests and Notifications

ID	New Proposed Requirement(s)	Remarks
23.1.1	Locate records based on predefined, user-defined, or stored and retrieved criteria.	
23.1.2	Sort retrieved records based on user-specified fields.	
23.1.3	Select/deselect records for further processing.	
23.1.4	Locate records based on search of the comments associated with an EA clearance request.	

23.2 Prepare and Edit EA Clearance Requests		
ID	**New Proposed Requirement(s)**	**Remarks**
23.2.1	Create, modify, copy or delete clearance requests and notifications for Routine, Annual, Special and Short-notice EA operations.	
23.2.2	Provide a template of required data items, based on the type of EA clearance request (e.g. electronic, chaff, rope).	
23.2.3	Provide interactive map and altitude tool to define EA operation locations, flight profile, and any flexibility available in flight routes.	
23.2.4	Provide interactive map tool to define name or nomenclature of known military operating areas, restricted areas, warning areas, and flight level, or any combination.	
23.2.5	Provide interactive map and altitude tool to define specific terrain features that mask the effects of the proposed EW and that reduce unintended harmful interference.	
23.2.6	Display/edit multiple EA clearance requests simultaneously.	
23.2.7	Provide split screen operations (two EA clearance requests) with transfer capabilities between screens.	
23.2.8	Map technical parameters data from an EA materials database into the EA clearance requests.	
23.2.9	Provide EA clearance requests item-level help text.	
23.2.10	Access the EW Deconfliction process from the EA clearance request(s) to determine interference effects.	
23.2.11	Support Web-based submission of an EA clearance request.	
23.3. Specify EA Coordination Requirements		
23.3.1	Add, modify, or delete the list of coordination requirements for each EA clearance request.	
23.3.2	Automatically determine coordination requirements based on the EA clearance request location, frequency band, and affected system[3].	

[3] CJCSI 3210.03 Joint EW Policy (Certain EW tests require notification and approval from the CJCS, in addition to the normal frequency clearance process.)

ID	New Proposed Requirement(s)	Remarks
23.3.3	Maintain local, free-text comments on the EA clearance request.	
23.3.4	Export EA clearance request in ASCII format.	
23.4 Track EA Clearance Request and Notification Status		
23.4.1	Maintain status of each EA clearance request and provide record locking for an EA clearance request that has a status pending.	
23.4.2	Automatically set the EA clearance request status to pending when proposal is forwarded for action.	
23.4.3	Maintain total coordination process visibility for EA clearance request, relaying location, status, and date/time of each transaction.	
23.4.4	Automatically update the EA clearance request status to approved when an authorization is made in response to the EA clearance request.	
23.4.5	Automatically update designated spectrum management sites databases with the EA clearance notification using distributed transactions.	
23.4.6	Automatically update the Central Server database with the EA clearance notification using distributed transactions.	
23.4.7	Maintain current EA clearance notification data, based on received transactions.	
23.4.8	Maintain an EA clearance request coordination or authorization status history.	
23.4.9	Display an EA clearance request coordination or authorization status history.	
23.4.10	Print an EA clearance request coordination or authorization status history.	
23.4.11	Automatically notify submitting agency/personnel regarding approval of an EA clearance request.	
23.4.12	Maintain “Cease-Buzzer” log entries associated with EA requests and notifications.	

ID	New Proposed Requirement(s)	Remarks
23.5 Print EA Clearance Requests and Notifications		
23.5.1	Print EA full record clearance request and notification textual information.	
23.5.2	Print a user-defined summary of selected EA clearance requests and notifications.	
23.5.3	Print EA clearance request and notification geographical information using a map and profile background.	
24. MONITOR ELECTROMAGNETIC ENVIRONMENT		
24.1 Maintain EME Use Database		
24.1.1	Allow the user to specify the background frequency assignment records for inclusion in EME definition.	
24.1.2	Allow the user to identify equipment mode usage for inclusion in the EME.	
24.1.3	Allow the user to update the operational location, status, and schedule of all EME entries.	
24.2 Establish Monitoring Mission		
24.2.1	Allow the user to establish multiple monitoring schedules.	
24.2.2	Allow the user to identify the frequency range(s) of the monitoring mission.	
24.2.3	Allow the user to establish the direction of interest for the monitoring mission.	
24.2.4	Automatically develop a set of monitoring instructions considering time, frequency, direction, and other necessary information to control the monitoring equipment.	
24.3 Set Up Monitor		
24.3.1	Automatically load the equipment sequences to control the monitoring equipment.	
24.3.2	Automatically run built-in test sequences to determine the operational status of the monitoring equipment.	
24.3.3	Automatically run internal calibration routines to verify the operational status of the monitoring equipment and to optimize its accuracy.	

ID	New Proposed Requirement(s)	Remarks
24.3.4	Establish background environmental noise levels about the monitor's site to avoid unnecessary data collection and analysis.	
24.4 Collect Monitored Signals		
24.4.1	Automatically execute preprogrammed monitor sequences.	
24.4.2	Allow the user to manually control the monitoring site either through selection of preprogrammed sequences or full manual control of the monitoring equipment.	
24.4.3	Extract data from the monitoring equipment that represent signals occurring in the environment. Include date/time, frequency, amplitude, and direction.	
24.5 Correlate Monitored Signals		
24.5.1	Automatically compute the expected frequency spectrum for the monitoring site based on the user defined EME data and the monitor's location.	
24.5.2	Compare and display the expected frequency spectrum to the observed signals based on common parameters such as frequency, bandwidth, modulation-received power, or direction of arrival.	
24.5.3	Determine and display signal location based on direction information from two, three, or more sites.	
24.5.4	Compare and display the previously observed frequency spectrum to the observed signals based on common parameters such as frequency, bandwidth, modulation-received power, or direction of arrival.	
24.5.5	Issue alerts to the user for cases where unexpected signals are observed.	
24.5.6	Update the previously observed signal archive.	
24.6 Resolve Unexpected Signals		
24.6.1	Automatically determine and monitor harmonically related frequencies of the unexpected signal.	
24.6.2	Automatically determine and monitor intermodulation related frequencies of the unexpected signal.	

ID	New Proposed Requirement(s)	Remarks
24.6.3	Allow the user to zoom in on individual unexpected signals in order to document signal characteristics.	
24.6.4	Allow the user to manually control monitoring equipment.	
24.7 Monitoring Equipment Characteristics		
24.7.1	Frequency range – To be determined.	
24.7.2	Modulations supported – To be determined.	
24.7.3	Bandwidths – To be determined.	
24.7.4	Sensitivity – To be determined.	
24.7.5	Detection modes – To be determined.	
24.7.6	Reported signal frequency accuracy – To be determined.	
24.7.7	Reported signal power accuracy – To be determined.	
24.7.8	Reported directional accuracy – To be determined.	
24.7.9	Scanning rate – To be determined.	
24.7.10	Provide internal diagnostics and calibration capabilities.	

APPENDIX B

JOINT SPECTRUM MANAGEMENT REQUIREMENTS CANDIDATES FOR ACCESS FROM THE GCCS

Through compilation and analysis of survey results and comparison of these results with defined procedures for management of spectrum in a joint environment, a subset of spectrum management requirements addressing the JRFL, the EW Deconfliction and the interference reporting functionality should be nominated to become accessible from GCCS. This subset addresses functionality that is required by multiple CINC/JTF staff sections (J2, J3, and J6). This subset, presented in this Appendix, will be forwarded to the GCC Review Board with a recommendation from the JSM WG that these requirements be approved as a group of Web-based tools accessible from the GCCS desktop.

This organization is meant to represent a logical presentation of the required capability not to specify an implementation strategy.

TABLE B-1
CANDIDATE REQUIREMENTS FOR ACCESS FROM THE GCCS

11 VIEW AND MAINTAIN JRFL DATA	
11.1 Manage the JRFL Database	
Paragraph	Requirement
11.1.1	Create, modify, or delete JRFL records.
11.1.2	Specify record search criteria.
11.1.3	Delete all records from the JRFL database.
11.1.4	Access and copy the user- selected frequency assignment and CEOI data into the JRFL.
11.1.5	Highlight JRFL data in all frequency assignment displays and prints.
11.1.6	Allow user-specified inclusion of JRFL data in Nomination and Interference Analysis functions.
11.1.7	Allow user-specified inclusion of JRFL data in EW Deconfliction.
11.2 Generate JRFL Reports	
11.2.1	Generate, display, or print a summary JRFL report (including a one line summary

Paragraph	Requirement
11.2.2	Specify the sort order of the JRFL report (e.g., CEOI, net name, frequency, status, period).
11.2.3	Generate, display, or print a user selected JRFL report.
	11.3 Import and Export JRFL Data
11.3.1	Import JRFL data from the disk file.
11.3.2	Import JRFL data from AUTODIN/DMS files.
11.3.3	Export selected JRFL data in SPECTRUM XXI format.
11.3.4	Export selected JRFL data in AUTODIN/DMS-compatible format.
	12 PERFORM EW DECONFLICTION
	12.1 Specify Analysis Characteristics
12.1.1	Specify jammer (friendly and hostile) characteristics and save for analysis.
12.1.2	Specify jammer mission characteristics for ground deployments (location, pointing angle).
12.1.3	Specify jammer mission characteristics for airborne deployments (track, orbit, pointing angles).
12.1.4	Base analysis on terrain-dependent propagation if terrain data is available.
12.1.5	Base analysis on smooth earth propagation if terrain data is not available.
12.1.6	Allow user specification of background frequency assignment types to be included in the analysis.
12.1.7	Provide geographically sensitive geophysical and engineering default parameters.
12.1.8	Allow user over-ride of all geophysical and engineering default parameters
	12.2 Determine Potential Spectrum Conflicts
12.2.1	Determine any conflict between frequency assignments, JRFL, CEOI and EW operations.
12.2.2	Consider mission and frequency assignment start and stop times and dates.
12.2.3	Display the status of analysis processing.

12.3 Display Potential Conflicts	
Paragraph	Requirement
12.3.1	Display the jammer and potentially affected assignments (tactical and background) on a map background.
12.3.2	Display a listing of potentially affected JRFL entries.
12.3.3	Display a listing of potentially affected CEOI nets.
12.3.4	Display a summary list of potentially affected frequency assignments in SFAF .
12.3.5	Display a summary list of potentially affected frequency assignments in NATO ADEF .
12.3.6	Include predicted level of interference in all displays.
12.4 Generate Spectrum Conflict Reports	
12.4.1	Specify report type.
12.4.2	Support user-defined reports.
12.4.3	Print EW conflict reports.
12.4.4	Export report file to a disk.
14 PREPARE AND PROCESS INTERFERENCE REPORTS	
14.1 Maintain Interference Events and Resolution	
14.1.1	Create, modify, or delete interference reports.
14.1.2	Display existing interference reports.
14.1.3	Print selected interference reports.
14.1.4	Duplicate an interference report.
14.1.5	Track the status of an interference report.
14.1.6	Electronically submit an interference report.
14.2 Modify an Existing Interference Report	
14.2.1	Edit interference victim, source, and impact information.
14.2.2	Import results from analysis models.

Paragraph	Requirement
14.2.3	Edit interfering system and resolution information.
14.3 Import and Export Interference Reports	
14.3.1	Import an interference report in SPECTRUM XXI format from the disk file.
14.3.2	Export interference records to disk file in ASCII format.
14.3.3	Print selected interference reports
14.4 Retrieve Interference Report Data	
14.4.1	Locate records based on user-specified criteria.
14.4.2	Select or deselect record(s) from those identified by the retrieval.

APPENDIX C - ACRONYMS

ABNF	ARFA Basic Notification Form
ADEF	Automated Data Exchange Format
AFC	Area Frequency Coordinator
AGA	Air-Ground-Air
AOR	Area of Responsibility
ARFA	Allied Radio Frequency Authorization
ASCII	American Standard Code for Information Interchange
AUTODIN	Automated Digital Network
CCF	Central Computing Facility
CD-ROM	Compact Disc-Read Only Memory
CEOI	Communications Electronics Operating Instructions
CINC	Commander-in-Chief
CNR	Combat Net Radio
COA	Course of Action
COE	Common Operating Environment
CONOPS	Concept of Operations
DCF	Distributed Computing Facility
DCS	Defense Communications Satellite
DII	Defense Information Infrastructure
DMS	Defense Messaging System
DoD	Department of Defense
DTED	Digital Terrain Elevation Data
EA	Electronic Attack
EHF	Extremely High Frequency
EW	Electronic Warfare
FAS	Frequency Assignment Subcommittee
FCC	Federal Communications Commission
FDR	Frequency-Dependent Rejection
FM	Frequency Modulation
FY	Fiscal Year
FOT	Frequency of Optimum Transmission
FRRS	Frequency Resource Record System
FSK	Frequency Shift Keying
GCCS	Global Command and Control System
GMF	Government Master File
HF	High Frequency
HERO	Hazardous Effects of Radiation on Ordnance
HERP	Hazardous Effects of Radiation on Personnel
HERF	Hazardous Effects of Radiation on Fuel
I/N	Interference to Noise
ICM	Interference Conflict Margin
IOC	Initial Operating Capability
ICOM	Integrated Communications Security
IRAC	Interdepartmental Radio Advisory Committee
ITU	International Telecommunications Union
JFMO	Joint Frequency Management Office
JOPES	Joint Operations Planning and Execution System
JRFL	Joint Restricted Frequency List
JSC	Joint Spectrum Center
JSM WG	Joint Spectrum Management Working Group
$JSMS_w$	Joint Spectrum Management System for Windows

JTA	Joint Technical Architecture
JTF	Joint Task Force
LOS	Line of Sight
LUF	Lowest Usable Frequency
MCEB	Military Communications-Electronics Board
MILDEP	Military Department
MILGRID	Military Grid
MSE	Mobile Subscriber Equipment
MRFL	Master Radio Frequency List
MSRT	Mobile Subscriber Radio Telephone
MUF	Maximum Usable Frequency
MUES	Management and Use of the Electromagnetic Spectrum
NATO	North Atlantic Treaty Organization
NPT	Network Planning Terminal
NTIA	National Telecommunication and Information Administration
NVIS	Near Vertical Incident Skywave
OPLAN	Operations Plan
RAU	Radio Access Unit
RBECS	Revised Battlefield Electronic CEOI System
RLOS	Radio Line of Sight
RSINISS	Revised SINCGARS ICOM/Non-ICOM Support Software
SAA	Satellite Access Authorization
SAR	Satellite Access Request
S/I	Signal-to-Interference Ratio
S/N	Signal-to-Noise Ratio
SCS	Spectrum Certification System
SFAF	Standard Frequency Action Format
SHF	Super High Frequency
SINCGARS	Single Channel Ground and Airborne Radio System
SIPRNET	Secret Internet Protocol Network
SPS	Spectrum Planning Subcommittee
TROPO	Troposcatter
UHF	Ultra High Frequency
US&P	United States and Possessions
UTM	Universal Transverse Mercator
VHF	Very High Frequency